0077369

EBERLINE SERVICES

October 19, 2007

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R7-09-005-7681, SDG H3566

Dear Mr. Trent:

Enclosed is the data report for three solid (soil) samples designated under SAF No. F07-043 received at Eberline Services on August 31, 2007. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3566 was composed of three solid (soil) samples designated under SAF No. F07-043 with a Project Designation of: 216-A-2 and 216-A-21 Characterization Sampling and Analysis-Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

Tritium activity at 3.06 pCi/g was observed in the QC blank greater than the sample MDA of 1.80 pCi/g, but much less than the RDL of400 pCi/g. No other problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.5 Iodine-129 Analysis

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Mel Mann
Melissa C. Mannion
Senior Program Manager

10/19/7
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H3566

SDG	7681
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H3566

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

SDG 7681
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3566

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/19/07

SDG 7681
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3566

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

LAB SAMPLE SUMMARY

SDG 7681
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3566

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R709005-01	B1NRH9	C5515, I-103 253'	SOLID		F07-043	F07-043-054	08/15/07 12:20
R709005-02	B1NRJ0	C5515, I-118 285'-287'	SOLID		F07-043	F07-043-059	08/21/07 09:05
R709005-03	B1NRJ1	C5515, I-132 317'-319.5'	SOLID		F07-043	F07-043-064	08/27/07 13:10
R709005-04	Lab Control Sample		SOLID		F07-043		
R709005-05	Method Blank		SOLID		F07-043		
R709005-06	Duplicate (R709005-02)	C5515, I-118 285'-287'	SOLID		F07-043		08/21/07 09:05

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SDG 7681
Contact Melissa C. Mannion

SAMPLE DELIVERY GROUP H3566

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3566

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7681	F07-043-054	B1NRH9	SOLID	96.9	85 g		08/31/07	16	R709005-01	7681-001
	F07-043-059	B1NRJ0	SOLID	83.8	70 g		08/31/07	10	R709005-02	7681-002
	F07-043-064	B1NRJ1	SOLID	86.2	109 g		08/31/07	4	R709005-03	7681-003
		Method Blank	SOLID						R709005-05	7681-005
		Lab Control Sample	SOLID						R709005-04	7681-004
		Duplicate (R709005-02)	SOLID	83.8	70 g		08/31/07	10	R709005-06	7681-006

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

PREP BATCH SUMMARY

SDG 7681
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3566

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
TC	SOLID	Technetium 99 in Solids	6121-082	10.0	3			1	1	1/1		
Gamma Spectroscopy												
I	SOLID	Iodine 129 in Solids	6121-082	10.0	3			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6121-082	10.0	3			1	1	1/1		
H	SOLID	Tritium in Solids	6121-082	10.0	3			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6121-082	10.0	3			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

LAB WORK SUMMARY

SDG 7681
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3566

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R709005-01	B1NRH9			7681-001	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
08/15/07	C5515, I-103 253'		SOLID	7681-001	H		10/11/07	10/15/07	BW	Tritium in Solids
08/31/07	F07-043-054	F07-043		7681-001	I		10/15/07	10/16/07	BW	Iodine 129 in Solids
				7681-001	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-001	TC		10/02/07	10/02/07	BW	Technetium 99 in Solids
R709005-02	B1NRJ0			7681-002	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
08/21/07	C5515, I-118 285'-287'		SOLID	7681-002	H		10/11/07	10/15/07	BW	Tritium in Solids
08/31/07	F07-043-059	F07-043		7681-002	I		10/15/07	10/16/07	BW	Iodine 129 in Solids
				7681-002	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-002	TC		09/29/07	10/02/07	BW	Technetium 99 in Solids
R709005-03	B1NRJ1			7681-003	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
08/27/07	C5515, I-132 317'-319.5'		SOLID	7681-003	H		10/11/07	10/15/07	BW	Tritium in Solids
08/31/07	F07-043-064	F07-043		7681-003	I		10/16/07	10/16/07	BW	Iodine 129 in Solids
				7681-003	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-003	TC		09/29/07	10/02/07	BW	Technetium 99 in Solids
R709005-04	Lab Control Sample			7681-004	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
			SOLID	7681-004	H		10/11/07	10/15/07	BW	Tritium in Solids
		F07-043		7681-004	I		10/16/07	10/16/07	BW	Iodine 129 in Solids
				7681-004	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-004	TC		09/28/07	10/02/07	BW	Technetium 99 in Solids
R709005-05	Method Blank			7681-005	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
			SOLID	7681-005	H		10/11/07	10/15/07	BW	Tritium in Solids
		F07-043		7681-005	I		10/16/07	10/16/07	BW	Iodine 129 in Solids
				7681-005	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-005	TC		10/02/07	10/02/07	BW	Technetium 99 in Solids
R709005-06	Duplicate (R709005-02)			7681-006	C		10/12/07	10/16/07	BW	Carbon 14 in Solids
08/21/07	C5515, I-118 285'-287'		SOLID	7681-006	H		10/11/07	10/15/07	BW	Tritium in Solids
08/31/07		F07-043		7681-006	I		10/16/07	10/16/07	BW	Iodine 129 in Solids
				7681-006	NI_L		10/06/07	10/10/07	BW	Nickel 63 in Solids
				7681-006	TC		09/28/07	10/02/07	BW	Technetium 99 in Solids

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

SDG 7681
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H3566

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORB	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	F07-043	Carbon 14 in Solids	C14_COX_LSC	3			1	1	1	6
H	F07-043	Tritium in Solids	TRITIUM_COX_LSC	3			1	1	1	6
I	F07-043	Iodine 129 in Solids	I129_SEP_LEPS_GS	3			1	1	1	6
NI_L	F07-043	Nickel 63 in Solids	NI63_LSC	3			1	1	1	6
TC	F07-043	Technetium 99 in Solids	TC99_TR_SEP_GPC	3			1	1	1	6
TOTALS				15			5	5	5	30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-005 **Method Blank**

METHOD BLANK

SDG 7681	Client/Case no Hanford	SDG H3566	
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R709005-05	Client sample id Method Blank		
Dept sample id 7681-005	Material/Matrix	SOLID	
	SAF No F07-043		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.481	2.6	4.56	400	U	H
Carbon 14	14762-75-5	0.487	2.1	3.59	50.0	U	C
Nickel 63	13981-37-8	0.608	1.8	3.08	30.0	U	NI_L
Technetium 99	14133-76-7	0.065	0.27	0.513	15.0	U	TC
Iodine 129	15046-84-1	-0.251	0.55	1.24	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

QC-BLANK #62750

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-004 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7681 Client/Case no Hanford SDG H3566

Contact Melissa C. Mannion Contract No. 630

Lab sample id R709005-04 Client sample id Lab Control Sample

Dept sample id 7681-004 Material/Matrix SOLID

SAF No F07-043

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	597	12	4.61	400		H	635	25	94	84-116	80-120
Carbon 14	1620	15	3.61	50.0		C	1600	64	101	84-116	80-120
Nickel 63	219	6.0	3.05	30.0		NI_L	222	8.9	99	84-116	80-120
Technetium 99	108	3.9	0.484	15.0		TC	109	4.4	99	83-117	80-120
Iodine 129	127	1.6	2.04	2.00		I	118	4.7	108	83-117	80-120

216A2 & 216A21 CharactSamp&Ana-Soil

QC-LCS #62749

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-006 B1NRJ0

DUPLICATE

SDG	7681			Client/Case no	Hanford SDG H3566
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R709005-06	Lab sample id	R709005-02	Client sample id	B1NRJ0
Dept sample id	7681-006	Dept sample id	7681-002	Location/Matrix	C5515, I-118 285'-287' SOLID
		Received	08/31/07	Collected/Weight	08/21/07 09:05 70 g
% solids	83.8	% solids	83.8	Custody/SAF No	F07-043-059 F07-043

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	2830	24	3.94	400		H	2860	25	4.01		1	21	0.1
Carbon 14	2.01	1.9	3.10	50.0	U	C	1.14	1.9	3.08	U	-		0.6
Nickel 63	1.15	1.9	3.10	30.0	U	NI_L	-1.02	1.8	3.17	U	-		1.7
Technetium 99	0.039	0.23	0.504	15.0	U	TC	0.176	0.26	0.730	U	-		0.8
Iodine 129	0.730	0.65	1.45	2.00	U	I	0.508	0.65	1.47	U	-		0.5

216A2 & 216A21 CharactSamp&Ana-Soil

QC-DUP#2 62751

DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-001 B1NRH9

DATA SHEET

SDG	7681	Client/Case no	Hanford	SDG H3566
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R709005-01	Client sample id	B1NRH9	
Dept sample id	7681-001	Location/Matrix	C5515, I-103 253'	SOLID
Received	08/31/07	Collected/Weight	08/15/07 12:20	85 g
% solids	96.9	Custody/SAF No	F07-043-054	F07-043

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	196	6.8	3.94	400		H
Carbon 14	14762-75-5	0.816	1.9	3.12	50.0	U	C
Nickel 63	13981-37-8	1.10	1.8	3.07	30.0	U	NI_L
Technetium 99	14133-76-7	0.084	0.19	0.547	15.0	U	TC
Iodine 129	15046-84-1	-0.400	0.54	1.24	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-002 B1NRJ0

DATA SHEET

SDG	7681	Client/Case no	Hanford	SDG H3566	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R709005-02	Client sample id	B1NRJ0		
Dept sample id	7681-002	Location/Matrix	C5515, I-118 285'-287'	SOLID	
Received	08/31/07	Collected/Weight	08/21/07 09:05	70 g	
% solids	83.8	Custody/SAF No	F07-043-059	F07-043	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	2860	25	4.01	400		H
Carbon 14	14762-75-5	1.14	1.9	3.08	50.0	U	C
Nickel 63	13981-37-8	-1.02	1.8	3.17	30.0	U	NI_L
Technetium 99	14133-76-7	0.176	0.26	0.730	15.0	U	TC
Iodine 129	15046-84-1	0.508	0.65	1.47	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-003 B1NRJ1

DATA SHEET

SDG	7681	Client/Case no	Hanford SDG H3566
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R709005-03	Client sample id	B1NRJ1
Dept sample id	7681-003	Location/Matrix	C5515, I-132 317'-319.5' SOLID
Received	08/31/07	Collected/Weight	08/27/07 13:10 109 g
% solids	86.2	Custody/SAF No	F07-043-064 F07-043

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	73.0	4.5	3.93	400		H
Carbon 14	14762-75-5	1.48	1.9	3.06	50.0	U	C
Nickel 63	13981-37-8	1.14	1.9	3.19	30.0	U	NI_L
Technetium 99	14133-76-7	-0.088	0.31	0.540	15.0	U	TC
Iodine 129	15046-84-1	-0.296	0.63	1.43	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test TC Matrix SOLID
SDG 7681
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3566

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 6121-082						
R709005-01			7681-001	B1NRH9	U	
R709005-02			7681-002	B1NRJ0	U	
R709005-03			7681-003	B1NRJ1	U	
R709005-04			7681-004	Lab Control Sample	ok	
R709005-05			7681-005	Method Blank	U	
R709005-06			7681-006	Duplicate (R709005-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	15.0	
216A2 & 216A21 CharactSamp&Ana-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6121-082			2σ prep error 10.0 %	Reference Lab Notebook #6121, pg. 82												
R709005-01			B1NRH9	0.547	1.00			98		50			48	09/25/07	10/02	GRB-204
R709005-02			B1NRJ0	0.730	1.00			96		50			39	09/25/07	09/29	GRB-206
R709005-03			B1NRJ1	0.540	1.00			102		50			33	09/25/07	09/29	GRB-207
R709005-04			Lab Control Sample	0.484	1.00			107		50				09/25/07	09/28	GRB-228
R709005-05			Method Blank	0.513	1.00			107		50				09/25/07	10/02	GRB-207
R709005-06			Duplicate (R709005-02)	0.504	1.00			103		50			38	09/25/07	09/28	GRB-202
Nominal values and limits from method				15.0	1.00			20-105		50			180			

PROCEDURES	REFERENCE	
	TC99_TR_SEP_GPC	
	SPP-062	Sample Aliquoting, rev 0
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 6 SAMPLES			
	MDA	0.553	± 0.180
	YIELD	102	± 9

Lab id EBRLNR
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test I Matrix SOLID
SDG 7681
Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOLIDS
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3566

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129	
Preparation batch 6121-082						
R709005-01			7681-001	B1NRH9	U	
R709005-02			7681-002	B1NRJ0	U	
R709005-03			7681-003	B1NRJ1	U	
R709005-04			7681-004	Lab Control Sample	ok	
R709005-05			7681-005	Method Blank	U	
R709005-06			7681-006	Duplicate (R709005-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	2.00	
216A2 & 216A21 CharactSamp&Ana-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6121-082			2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82													
R709005-01			B1NRH9	1.24	1.00			68		837			61	10/11/07	10/15	XSPEC-004
R709005-02			B1NRJ0	1.47	1.00			66		837			55	10/11/07	10/15	XSPEC-002
R709005-03			B1NRJ1	1.43	1.00			63		605			50	10/11/07	10/16	XSPEC-004
R709005-04			Lab Control Sample	2.04	1.00			84		605				10/11/07	10/16	XSPEC-002
R709005-05			Method Blank	1.24	1.00			64		785				10/11/07	10/16	XSPEC-004
R709005-06			Duplicate (R709005-02)	1.45	1.00			65		786			56	10/11/07	10/16	XSPEC-002
Nominal values and limits from method				2.00	1.00			20-105		300			180			

PROCEDURES	REFERENCE	
	I129_SEP_LEPS_GS	
	SPP-062	Sample Aliquoting, rev 0
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD FOR 6 SAMPLES			
	MDA	1.48	± 0.588
	YIELD	68	± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/19/07

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test C Matrix SOLID
SDG 7681
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3566

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation batch 6121-082						
R709005-01			7681-001	B1NRH9	U	
R709005-02			7681-002	B1NRJ0	U	
R709005-03			7681-003	B1NRJ1	U	
R709005-04			7681-004	Lab Control Sample	ok	
R709005-05			7681-005	Method Blank	U	
R709005-06			7681-006	Duplicate (R709005-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	50.0	
216A2 & 216A21 CharactSamp&Ana-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6121-082			2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82													
R709005-01			B1NRH9	3.12	0.460			100		50			58	10/10/07	10/12	LSC-004
R709005-02			B1NRJ0	3.08	0.458			100		50			52	10/10/07	10/12	LSC-004
R709005-03			B1NRJ1	3.06	0.460			100		50			46	10/10/07	10/12	LSC-004
R709005-04			Lab Control Sample	3.61	0.400			100		50				10/10/07	10/12	LSC-004
R709005-05			Method Blank	3.59	0.400			100		50				10/10/07	10/12	LSC-004
R709005-06			Duplicate (R709005-02)	3.10	0.461			100		50			52	10/10/07	10/12	LSC-004
Nominal values and limits from method				50.0	0.400					10			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 3.26 ± 0.528
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test H Matrix SOLID
SDG 7681
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3566

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 6121-082					
R709005-01			7681-001	B1NRH9	196
R709005-02			7681-002	B1NRJ0	2860
R709005-03			7681-003	B1NRJ1	73.0
R709005-04			7681-004	Lab Control Sample	ok
R709005-05			7681-005	Method Blank	U
R709005-06			7681-006	Duplicate (R709005-02)	ok
Nominal values and limits from method				RDLs (pCi/g)	400
216A2 & 216A21 CharactSamp&Ana-Soil					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6121-082			2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82													
R709005-01			B1NRH9	3.94	0.460			100		50			57	10/10/07	10/11	LSC-004
R709005-02			B1NRJ0	4.01	0.458			100		50			51	10/10/07	10/11	LSC-004
R709005-03			B1NRJ1	3.93	0.460			100		50			45	10/10/07	10/11	LSC-004
R709005-04			Lab Control Sample	4.61	0.400			100		50				10/10/07	10/11	LSC-004
R709005-05			Method Blank	4.56	0.400			100		50				10/10/07	10/11	LSC-004
R709005-06			Duplicate (R709005-02)	3.94	0.461			100		50			51	10/10/07	10/11	LSC-004
Nominal values and limits from method				400	0.400					25			180			

PROCEDURES REFERENCE TRITIUM_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 4.16 ± 0.654
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test NI L Matrix SOLID
SDG 7681
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3566

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 6121-082						
R709005-01			7681-001	B1NRH9	U	
R709005-02			7681-002	B1NRJ0	U	
R709005-03			7681-003	B1NRJ1	U	
R709005-04			7681-004	Lab Control Sample	ok	
R709005-05			7681-005	Method Blank	U	
R709005-06			7681-006	Duplicate (R709005-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	30.0	
216A2 & 216A21 CharactSamp&Ana-Soil						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6121-082			2σ prep error 10.0 %	Reference Lab Notebook #6121, pg. 82												
R709005-01			B1NRH9	3.07	0.500			95		50			52	10/05/07	10/06	LSC-006
R709005-02			B1NRJ0	3.17	0.500			93		50			46	10/05/07	10/06	LSC-006
R709005-03			B1NRJ1	3.19	0.500			91		50			40	10/05/07	10/06	LSC-006
R709005-04			Lab Control Sample	3.05	0.500			96		50				10/05/07	10/06	LSC-006
R709005-05			Method Blank	3.08	0.500			95		50				10/05/07	10/06	LSC-006
R709005-06			Duplicate (R709005-02)	3.10	0.500			93		50			46	10/05/07	10/06	LSC-006
Nominal values and limits from method				30.0	0.500			30-105		25			180			

PROCEDURES
REFERENCE NI63_LSC
CP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
CP-280 Nickel-63 Purification, rev 3

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 3.11 ± 0.114
YIELD 94 ± 4

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Protocol Hanford
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Version 3.06
Report date 10/19/07

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Contact Melissa C. Mannion

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H3566

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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SDG 7681
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3566

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/19/07

SDG 7681
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H3566

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/19/07

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F07-043-054	PAGE 1 OF 1

COLLECTOR Pope/Pfister/Mokler	COMPANY CONTACT Trent, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ
SAMPLING LOCATION C5515, I-103 — 253'	PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043
ICE CHEST NO. GRP-03-027	FIELD LOGBOOK NO.	COA 122868 ES3	METHOD OF SHIPMENT FEDERAL EXPRESS
SHIPPED TO Eberline Services	OFFSITE PROPERTY NO. See PTR 20166 H3566 (7681)		BILL OF LADING/AIR BILL NO. See PTR 20166

PRICE CODE 8N

AIR QUALITY [ ]

DATA TURNAROUND 45 Days / 45 Days

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
Rad-tu BINRC2

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	60mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1NRH9	SOIL	8/15/7	1220	✓
LOT #				025305

CHAIN OF POSSESSION	DATE/TIME	SIGN/ PRINT NAMES RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: J. Mokler [signature]	8/15/7 - 1545	MO 745 REF 1	8/15/7 1545
RELINQUISHED BY/REMOVED FROM: MO-745 RF 1	AUG 30 2007 1000	M. A. Baechler [signature]	AUG 30 2007 1000
RELINQUISHED BY/REMOVED FROM: M. A. Baechler [signature]	AUG 30 2007 1800	Fed EX	
RELINQUISHED BY/REMOVED FROM: FED EX		[signature]	08/31/07 09:40
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN	

SPECIAL INSTRUCTIONS
(1)Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F07-043-059	PAGE 1 OF 1

COLLECTOR: Pope/Pfister/Mokler

COMPANY CONTACT: Trent, SJ — **TELEPHONE NO.** 373-5869

PROJECT COORDINATOR: TRENT, SJ

PRICE CODE 8N

DATA TURNAROUND: 45 Days / 45 Days

SAMPLING LOCATION: C5515, I-118 285'-287'

PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil

SAF NO. F07-043

AIR QUALITY ☐

ICE CHEST NO. GRP-03-027

FIELD LOGBOOK NO.

COA: 122868 ES3

METHOD OF SHIPMENT: FEDERAL EXPRESS

SHIPPED TO: Eberline Services

OFFSITE PROPERTY NO. See PTR 20166 H3566 (7681)

BILL OF LADING/AIR BILL NO. See PTR 20166

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegitation, W=Water, WI=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE: Rad fu BINTOG

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	60mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1NRJ0	SOIL	8-21-07	0605	X

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SPope / [illegible]	8.21.07 1410	MG-745 / REF. 1	8.21.07 1410
MO-745 / Ref 1	AUG 30 2007 1000	M. A. Baechler [signature]	AUG 30 2007 1000
M. A. Baechler [signature]	AUG 30 2007 1000	Fed Ex	
Fed Ex		[signature]	08/31/07 09:40

SPECIAL INSTRUCTIONS

(1)Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F07-043-064	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Mokler	**COMPANY CONTACT** Trent, SJ **TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** 45 Days / 45 Days
SAMPLING LOCATION C5515, I-132 317' - 319.5'	**PROJECT DESIGNATION** 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	**SAF NO.** F07-043		
ICE CHEST NO. GRP-03-027	**FIELD LOGBOOK NO.**	**COA** 122868 ES3	**METHOD OF SHIPMENT** FEDERAL EXPRESS	
SHIPPED TO Eberline Services	**OFFSITE PROPERTY NO.** See PTR 20166 H3566 (7681)		**BILL OF LADING/AIR BILL NO.** See PTR 20166	

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
Rad to B1NRC3

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	60mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1NRJ1	SOIL	8-27-07	1310	X
			Lot#	023427

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.S. Mokler	8-27-07 1500	Mo 745 Fr.	8-27-07 1500
Mo-745 Fr.	AUG 30 2007 1000	M.A. Baechler	AUG 30 2007 1000
M.A. Baechler	AUG 30 2007 1000	FED EX	
FED EX			08/31/07 09:40

SPECIAL INSTRUCTIONS
(1)Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

A-6003-618(01/06)

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 9/4/07

Client: F. HANFORD City: MCHCAND State: WA

Date/Time received 08/31/07 09:40 CoC No. F07-043-054,059,064

Container I.D. No. GRP-03-027 Requested TAT (Days): 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [Y]	No [ ]	N/A
2.	Custody seals on shipping container dated & signed?	Yes [Y]	No [ ]	N/A
3.	Custody seals on sample containers intact?	Yes [X]	No [ ]	N/A
4.	Custody seals on sample containers dated & signed?	Yes [X]	No [ ]	N/A
5.	Packing material is	Wet [ ]	Dry [Y]	
6.	Number of samples in shipping container 3	Sample Matrix S		
7.	Number of containers per sample 1	(Or see CoC ____		
8.	Samples are in correct container	Yes [Y]	No [ ]	
9.	Paperwork agrees with samples?	Yes [X]	No [ ]	
10.	Samples have Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [Y]			
11.	Samples are: In good condition [Y] Leaking [ ] Broken Container [ ] Missing [ ]			
12.	Samples are Preserved [ ] Not preserved [ ] pH ____ Preservative ____			
13.	Describe any anomalies:			
14.	Was P.M. notified of any anomalies?	Yes [ ]	No [ ]	Date ____
15.	Inspected by [signature]	Date 09/04/07	Time 9:15	

Customer Sample No	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

Beta/Gamma Meter Ser. No. ____ Calibration date ____